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XXXII.—*Notes on various African and Asiatic Species of Hapalochrus, Br., with an Account of their accessory ♂-characters [Coleoptera].* By G. C. CHAMPION, F.Z.S.

[Continued from p. 201.]

[Plate VIII.\*]

### 25. *Hapalochrus inchoatus*, sp. n.

♂. Elongate, rather narrow, widened posteriorly, shining, clothed with rather long pallid hairs; cyaneous or violaceous, rarely brassy or golden-green, the elytra often green, the basal three or four joints of the antennæ wholly or in part, the anterior legs (the tarsi excepted), and the intermediate femora at the base beneath or entirely, testaceous, the rest of the antennæ and legs black or metallic, the abdomen flavescent and nigro-maculate. Head sparsely punctulate, shining; antennæ long, rather stout, joints 2-10 almost equal in width, much longer than broad. Prothorax broader than long, sparsely punctulate laterally, smooth on the disc. Elytra densely, rugulose, and not very coarsely punctate. Anterior trochanters toothed; anterior femora (Pl. VIII. fig. 22) with a small tooth at the base; anterior tibiæ dilated and obliquely excavate beyond the middle; anterior tarsal joint 2 prolonged over 3; intermediate femora excavate at the base beneath; intermediate tibiæ (Pl. VIII. fig. 22a) strongly incrassate, convex, subtriangular, excavate at the apex within, and furnished with a long, sinuous,

\* [The Plate will be published with the concluding part of the article.]

curved appendage at the inner apical angle and a shorter appendage beneath the outer angle.

Var. ♂. Anterior trochanters simple; intermediate tibiæ testaceous. [Congo da Lemba.]

♀. Antennæ very similar to those of ♂; legs black.

Length  $3\frac{1}{2}$ –5, breadth  $1\frac{3}{4}$ – $2\frac{1}{10}$  mm. (♂ ♀.)

Hab. W. CENTRAL AFRICA, Belgian Congo: Amadi (*P. van den Plas*: ♂ ♀: types), Congo da Lemba (*R. Mayné*: ♂ ♀: var.), Wombali (*P. Vanderijst*), Bambili (*Dr. Rodhain*), Nyangwe (*R. Mayné*), Beni-Lesse (*Dr. Murtula*), &c.

Described from a series of upwards of 100 examples, the sexes in about equal numbers, belonging to the Congo Museum. The form with dark intermediate tibiæ in ♂ is represented by more than 50 specimens from Amadi, and the one with these tibiæ red in ♂ by at least a dozen from Congo da Lemba. A female of it in the same Museum has been named by Pic *H. testaceicornis*, this insect being separable from the same sex of *H. azureus* as here understood by the stouter antennæ, and the finer and denser puncturing of the elytra, and from that of *H. testaceicornis* by the shining, less rugose head. The more strongly appendiculate intermediate tibiæ of the ♂ distinguishes *H. inchoatus* from *H. dahomeyanus*, these two forms having the antennal joints undilated as in ♀ ♀ of *H. testaceicornis* and *H. fusicornis*.

## 26. *Haplochrus fusicornis*, sp. n.

♂. Moderately elongate, rather convex, shining, clothed with semi-erect, whitish pubescence; bluish-green or green, the basal half of the antennæ (a dark streak on joint 1 excepted), the anterior femora at the tip, the intermediate femora at the base in front, and the anterior tibiæ entirely, testaceous. Head short, nearly as wide as the prothorax, closely, finely punctulate; antennæ stout, moderately long, tapering from joint 3, the latter much thickened and longer than 2. Prothorax transverse, convex, obliquely narrowed posteriorly, smooth on the disc, finely punctate at the sides. Elytra oblong, at the base about as broad as the prothorax, a little widened posteriorly, densely, rugulose punctate. Anterior trochanters unarmed; anterior femora with a small tooth at the base; anterior tibiæ moderately widened, simply sinuate and compressed; anterior tarsal joints 1 and 2 rather long, somewhat thickened, 2 extending over 3; intermediate tibiæ stout, simply sinuate on their inner and outer aspects, appearing subangulate when viewed from the side.

♀. Antennæ more slender, feebly serrate, joint 3 not

dilated, 1-3 partly testaceous; legs almost wholly black or metallic.

Length 4-4½, breadth 1⅔-2 mm.

*Hab.* W. AFRICA, Cotonou in Dahomey, 70 miles due W. of Lagos (*W. A. Lamborn*: v., vi. 1914, vi. 1915).

Two males and three females. Very like the Nigerian *H. dilaticornis*, the ♂ with stout, much less dilated, tapering antennæ, with enlarged third joint, the anterior and intermediate tibiæ moderately thickened and simply sinuate, the latter subangulate externally and not bilobate at tip. More robust than *H. azureus*, Er. (= *caruleus*, Murr.), the antennæ stouter in both sexes, the ♂-characters very different. The allied *H. tschoffeni*, Pic (1907), from the Congo, type ♂, has tapering, less thickened antennæ, with smaller third joint, basally dentate anterior femora, moderately inflated intermediate tibiæ, &c. *H. diversipes*, Pic (1919), type ♂?, incorrectly treated as a variety of *H. sjöstedti*, seems to have similar antennæ.

#### 27. *Hapalochrus dahomeyanus*, sp. n.

♂. Extremely like *H. fusicornis*: antennæ feebly serrate, formed and coloured as in the ♀ of that species, the third joint not dilated; anterior femora (except along their upper edge) and tibiæ, and the intermediate femora beneath, testaceous; anterior femora with a slender tooth at the extreme base; anterior tibiæ twisted and dilated, compressed and excavate towards the apex; anterior tarsal joints 1 and 2 slightly thickened, 2 extending over 3; intermediate tibiæ very stout, elongate-triangular, not angulate at the middle externally, furnished with a short, broad, compressed, testaceous lobe at the inner apical angle, and with a short tooth beneath the outer angle; elytra a little smoother at the base.

Length 4, breadth 1⅔ mm.

*Hab.* W. AFRICA, Cotonou in Dahomey (*W. A. Lamborn*: 31. v. 1914).

One ♂, found at the same locality as *H. fusicornis*, differing from it as stated above.

#### 28. *Hapalochrus tschoffeni*.

*Hapalochrus tschoffeni*, Pic, Ann. Soc. Ent. Belg. li. p. 384 (♂) (1907).

♂. Antennæ testaceous (except at the tip), rather stout, tapering towards the apex; anterior legs (the tips of the tarsi excepted) testaceous, the trochanters unarmed, the femora with a long, slender tooth at the extreme base,

the tibiæ moderately dilated and excavate beyond the middle, the tarsal joint 2 produced over 3, nigro-pectinate at tip; intermediate femora testaceous to near the apex, excavate at the base beneath; intermediate tibiæ gradually incrassate towards the tip, transversely hollowed before and at the apex beneath, and without lobe at the inner apical angle.

*Hab.* W. CENTRAL AFRICA, Boma, Congo (*type of Pic*), Congo da Lemba (*R. Mayné, in Mus. Congo Belge*).

The above description of the ♂ is taken from a specimen in the Congo Museum, captured by M. Mayné in January or February 1913. It is doubtful if the ♀ is distinguishable from the same sex of several of the allied forms. The ♀ has the intermediate tibiæ much less incrassate than in *H. testaceicornis*, *H. dilaticornis*, &c., and they are more thickened distally and less sinuate than in *H. fusicornis*.

### 29. *Hapalochrus appendicifer*.

♂. *Hapalochrus appendicifer*, Pic, L'Echange, xx. p. 34 (1904).

Var. ♀. *Hapalochrus martini*, Pic, *loc. cit.* p. 28.

♂. Antennæ stout, joint 2 much longer than 3, testaceous, 4-9 about as long as broad; anterior tibiæ obscure testaceous or piceous, curved, broad, rapidly widened to near the tip and then sinuously, obliquely compressed and deeply excavate, the apical portion narrow; anterior tarsal joints 1 and 2 thickened, subequal in length, 2 narrowly extended over 3; intermediate femora deeply, abruptly excised before the apex (appearing angulate at the middle); intermediate tibiæ (Pl. VIII. fig. 19) very stout, curved, dilated to near the apex within and then obliquely narrowed to the tip, the angle thus formed bearing a long, slender, compressed, subtruncate, free appendage, the outer apical angle with a short tooth beneath.

Length 4-4 $\frac{1}{2}$ , breadth 1 $\frac{4}{5}$ -2 mm. (♂ ♀.)

*Hab.* S.E. AND E. AFRICA, Dunbrody [Uitenhage] (*Rev. O'Neil*: type of Pic, ♂), Durban (*H. W. Bell Marley*: xii. 1901: ♂), Malvern (*G. A. K. Marshall*: ♀), Zambesi (*Mus. Brit.*: ♀), Zanzibar (*Revoil, ex coll. Fry*: ♀), Karonga, Nyasaland (*S. A. Neave*: ♀); Manyema (*Dupuis, in Mus. Congo Belge*: ♂ ♀).

The British Museum possesses a ♂ of this species from Durban agreeing with Pic's description of *H. appendicifer*, and with another specimen of the same sex from Manyema named by the author. Females from Malvern and Zambesi, green or brassy-green in colour, with the elytra more sparsely and less coarsely punctured at the base, are appa-

rently referable to *H. martini*, Pic, described a little earlier in the same year; and another example of the same sex from Zanzibar, brilliant cyaneous in colour, can be placed under *H. appendicifer* for the present. *H. mashunus*, Gorh., and various other African *Hapalochri* have very similar tibial appendages.

### 30. *Hapalochrus aërosus*.

*Hapalochrus aërosus*, Gorh. Ann. & Mag. Nat. Hist. (7) vii. p. 359 (♂ ♀) (1901).

♂. Antennæ stout, subserrate; anterior trochanters with a long tooth; anterior femora curved, feebly angulate and bearing a small tuft of hairs near the base beneath; anterior tibiæ widened to near the tip and then obliquely compressed and deeply emarginate; anterior tarsal joints 1 and 2 slightly thickened, 2 extending over 3; intermediate femora curved, stout, angularly dilated and inferiorly foveate at the middle (appearing deeply excised at the base); intermediate tibiæ very stout, broadly widened outwards, and with a short, flattened, retractile lobe arising from above the inner angle, the lower surface deeply foveate at the middle and obliquely excavate towards the apex.

♀. Antennæ more slender.

*Hab.* S.E. AFRICA, Kopjes west of Lesapi River, Chirinda (G. A. K. Marshall).

Twelve specimens seen, including five males. Separable from *H. mashunus* by the brassy colour, coarser elytral puncturing, and the different ♂-characters. Gorham did not note the strong, angular dilatation of the intermediate femora in that sex of the present species, of which there is no trace in *H. mashunus*. The ♂, too, has both the intermediate femora and tibiæ foveate at the middle beneath.

### 31. *Hapalochrus longicornis*, sp. n.

♂. Moderately elongate, narrow, shining, closely pubescent; cyaneous or bluish-green, the antennæ (the testaceous lower surface of one or more of the basal joints excepted), palpi, and legs black or metallic, the ventral sutures testaceous. Head closely punctulate; antennæ subfiliform, very long, reaching to at least the middle of the elytra, rather stout. Prothorax slightly broader than long, rounded at the sides, the lateral portions densely, rugulose punctate, the disc almost smooth. Elytra not very elongate, widened posteriorly, rounded and rather convex at the apex, depressed on the disc anteriorly; densely, rather coarsely punctate. Anterior trochanters with a minute tooth; anterior tibiæ

angularly dilated at the middle, and excavate and compressed beyond this; anterior tarsal joints 1 and 2 slightly thickened; intermediate femora areuately hollowed before the apex beneath (appearing angulate at the middle); intermediate tibiæ (Pl. VIII. fig. 20) broadly, abruptly incrassate from near the base to the apex, slightly excavate and with a very small compressed lobe near the inner apical angle, the lower surface foveate at about the middle.

♀. Antennæ much shorter and not nearly so stout, the joints always considerably longer than broad.

Length  $2\frac{1}{2}$ - $3\frac{1}{2}$ , breadth  $1\frac{1}{10}$ - $1\frac{1}{2}$  mm. (♂ ♀.)

*Hab.* W. CENTRAL AFRICA, Belgian Congo: Amadi [type] (*P. van den Plas*: iii., iv. 1913: ♂ ♀), Coquilhatville, Watsa, Kindu, Bamba (*L. Burgeon*: ♂ ♀), Itoka, Mobwasa, Ganda-Sundi (*R. Mayné*: ♂ ♀).

Described from a series of about thirty males and forty females belonging to the Congo Museum. Very like *H. densatus*, Bourg. (No. 41), the ♂ with much longer and stouter antennæ, less dilated anterior tibiæ, and broader, less excavate intermediate tibiæ, the elytra relatively shorter. The antennæ are less dilated in the ♂, and the elytra more coarsely punctured, than in *H. mashunus* (No. 39). The females of these insects are scarcely distinguishable one from another.

### 32. *Hapalochrus patruelis*, sp. n.

♂. Extremely like *H. longicornis*, cyaneous, the head and prothorax violaceous, the antennal joints 1-5 (the upper surface of 1 excepted) testaceous, the others black, the legs nigro-cyaneous; antennæ much shorter, barely reaching the middle of the elytra, rather stout, somewhat filiform; head closely punctulate; prothorax transverse, rugulosely punctate at the sides; elytra densely, roughly punctate; anterior trochanters with a long slender tooth; anterior tibiæ dilated at the middle; intermediate femora deeply, arcuately hollowed before the apex beneath (appearing sharply toothed at the middle); intermediate tibiæ somewhat broadly dilated from near the base to the apex, slightly excavate and with a very short compressed lobe at the inner apical angle.

♀. Antennæ more slender and less elongate, the basal joints darker.

Length  $2\frac{1}{2}$ -3, breadth  $1\frac{1}{5}$ - $1\frac{1}{3}$  mm. (♂ ♀.)

*Hab.* W. CENTRAL AFRICA, Belgian Congo: Wombali (*P. Vanderijst*: vii., ix. 1913: ♂ ♀) and Kabambare (*Flamand*: 8. iii. 1907: ♀).

Described from eight specimens from Wombali, including



two males, belonging to the Congo Museum. Very like *H. longicornis*, the ♂ with the antennæ less elongate and testaceous in their basal half, a longer tooth to the anterior trochanters, and more sharply angulate intermediate femora. *H. kolbei*, Bourg., from Kilimandjaro, &c., seems to be an allied larger form, with the anterior femora and tibiæ partly testaceous in the ♂, and the head densely rugose.

### 33. *Hapalochrus semicupreus*.

♂. *Apalochrus semicupreus* and var. *moloensis*, Pic, Mélanges exot.-entom. xxxi. p. 10 (Oct. 1919) (part.).

♂. Moderately elongate, rather convex, shining, somewhat thickly clothed with long, erect, fuscous hairs; head, prothorax, and scutellum brilliant cupreous, golden, or golden-green, the elytra cyanaceous, the antennæ (the testaceous outer and inner edges of joints 1-3 excepted), palpi, legs, and abdomen metallic or black. Head short, sparsely, somewhat coarsely punctate; antennæ long, rather slender, joints 2-9 elongate, subcylindrical. Prothorax convex, a little broader than long, abruptly, obliquely narrowed at the base: sparsely, coarsely punctate, the punctures becoming more crowded towards the sides. Elytra about as broad as the prothorax at the base, gradually widened to beyond the middle and bluntly rounded at the apex, the lateral margins prominent; coarsely, confluent, rugosely punctate. Anterior trochanters with a long tooth; anterior tibiæ obliquely widened and dentate towards the tip within, the space between this and the apex diaphanous and deeply emarginate; anterior tarsal joints 1 and 2 slightly thickened, subequal in length (when viewed in profile), 2 narrowly extended over 3; intermediate tibiæ greatly thickened, subtriangular, convex and rounded externally, excavate beneath, and with a short compressed lobe at the inner apical angle.

♀. Antennæ shorter and more slender; head and prothorax a little narrower; elytra inflated, more rounded at the sides; wings squamiform, extremely rudimentary.

Length 4-4 $\frac{3}{4}$ , breadth 2-2 $\frac{1}{2}$  mm. (♂ ♀.)

*Hab.* E. AFRICA (*Mus. Brit.*, ex Gregory coll.: 1894: ♀), Western foot of Aberdare, alt. 8000 ft., and W. slopes of Kenya, on Meru-Nyeri Road, alt. 6000-8500 ft. (*S. A. Neave*: ii., iii. 1911), Elgon District (*Dr. Bayer*, in *Mus. Congo Belge*).

The above description is taken from a long series, ♂ ♀, captured by Dr. Neave in 1911. Recognizable by the

brilliantly metallic golden, cupreous, or green, rather coarsely punctured head and prothorax, and the cyaneous, very rugose elytra, the ♀ almost apterous and having the elytra inflated as in the same sex of *H. amplipennis*, Harold. The rather coarsely punctured head and prothorax, the strongly toothed anterior trochanters and the longer second joint of the anterior tarsi of the ♂, &c., separate *H. semicupreus* from the last-named insect.

The incomplete diagnosis of Pic (excluding his subsp. *kenyensis* and var. *viridimetallicus*) doubtless applies to the present species, the type of which was from "E. Africa."

#### 34. *Hapalochrus viridicollis*, sp. n.

♂. Moderately elongate, sparsely pubescent and fusco-hirsute; brilliant golden-green, the elytra cyaneous, the antennæ, legs, and under surface black or metallic. Head and prothorax almost smooth, the latter broader than long, abruptly, sinuously narrowed at the base; antennæ rather long and slender; elytra gradually widened posteriorly, rounded at the apex, densely, coarsely, confluent punctate; anterior trochanters without tooth; anterior tibiæ moderately dilated at the middle, deeply, obliquely excavate towards the apex within, and abruptly emarginate and diaphanous on its inner edge before the tip; anterior tarsal joints 1 and 2 thickened, 2 (when viewed in profile) perceptibly prolonged over the base of 3; intermediate tibiæ long, somewhat sinuate, greatly, subequally thickened from near the base to the apex, convex externally, and with a short compressed lobe at the inner apical angle.

♀. Elytra rounded at the sides, convex; wings rudimentary.

Length 4-4½, breadth 2¼ mm. (♂ ♀.)

*Hab.* E. AFRICA, S.E. slopes of Kenya [♂] and Kikuyu Escarpment [♀], alt. 6000-7400 ft. (*S. A. Neave*: ii., iii. 1911).

One pair, precisely similar in colour and in their elytral sculpture. A species separable from the allied forms with subapterous females by the subequally incrassate, distinctly sinuate intermediate tibiæ of the male, and the confluent, coarse sculpture of the elytra in the two sexes. The anterior trochanters of the ♂ want the tooth present in the same sex of *H. semicupreus* and *H. triangularis* (No. 61); and the anterior tibiæ in this sex are not dilated into a tooth as in *H. amplipennis* (No. 65). The second anterior tarsal joint of the ♂ appears to be simple till the tarsus is viewed in profile.



35. *Hapalochrus platycerus*, sp. n.

♂. Elongate, narrow, bluish-green or cyaneous, the antennæ black; clothed with whitish pubescence intermixed with longer, semi-erect, soft hairs. Head nearly as wide as the prothorax, almost unimpressed, densely, rugosely, punctate; antennæ moderately elongate, stout, joints 5-9 broadly, obliquely dilated, 7-9 twice as broad as long, 10 oblong. Prothorax convex, a little broader than long, rounded at the sides, obliquely narrowed behind, rugosely punctured laterally, much smoother on the disc. Elytra long, widened posteriorly, rounded at the apex, densely, rugulose punctate. Anterior femora thickened, bearing a small tuft of stiff hairs at the base; anterior tibiæ stout, sinuous within, obliquely compressed and with a narrow diaphanous space on their inner aspect before the tip; anterior tarsal joints 1 and 2 stout, 1 longer than 2, 2 extending over 3; intermediate tibiæ curved, convex externally, broadly, abruptly widened from near the base, strongly sinuate and excavate within, and with a rather broad, compressed appendage near the inner apical angle and a narrow appendage below the outer angle.

♀. Antennæ shorter, joints 5-9 much less dilated, 4-8 gradually widened.

Length 6, breadth 2 mm. (♂ ♀.)

*Hab.* E. AFRICA, Lukanga in N. Rhodesia (*H. C. Dollman*: 24. iv. and 1. v. 1915).

One pair. In this insect the antennæ of the ♂ are greatly dilated (joints 6-9 being broadly lamellate) and the head is strongly rugose in both sexes. The ♂ has the anterior tibiæ formed as in *H. clavicornis*, and the intermediate tibiæ broadly widened, sinuate and excavate within, and bearing a rather broad compressed appendage near the inner apical angle.

36. *Hapalochrus rugosus*, sp. n.

♂. Moderately elongate, rather dull, the prothorax shining; blue or bluish-green, the antennæ, palpi, and legs black or metallic, the intermediate tibiæ of ♂ testaceous at the apex within, the ventral sutures rufescent; thickly clothed with shaggy whitish pubescence intermixed with long, erect, soft hairs. Head short, flattened, densely, rugosely punctate; antennæ moderately long, serrate, dilated from the fifth joint onward. Prothorax broader than long, obliquely narrowed behind, rugosely punctured at the sides, very sparsely and minutely so on the middle of the disc,

the transverse grooves shallow. Elytra rather elongate, widened posteriorly, densely, rugosely punctured. Anterior femora thickened; anterior tibiæ stout, obliquely compressed, excavate, and deeply emarginate before the apex; anterior tarsal joints 1 and 2 stout, 2 extending over 3; intermediate tibiæ greatly swollen, broadly widened from near the base to the apex, slightly sinuate towards the tip within, deeply, sinuately excavate in their outer half beneath, and furnished beyond the middle with a rather broad, testaceous, compressed appendage, the excavated portion bearing an inwardly-curved tuft of matted yellowish hairs below the outer angle.

♀. Antennæ a little more slender.

Length  $4\frac{3}{4}$ – $5\frac{1}{4}$ , breadth  $2$ – $2\frac{1}{2}$  mm. (♂ ♀.)

Hab. S. AFRICA, Howick, Natal (*J. P. Cregoe*).

Sixteen specimens, the sexes in equal numbers. Larger, duller, and less shining than *H. appendicifer*, Pic, the head, the sides of the prothorax, and the elytra densely, roughly punctate, the ♂-characters different, the appendage of the middle tibiæ much shorter and broader, the excavated inferior portion bearing a matted tuft of curled hairs below the outer apical angle. This structure cannot be seen properly unless the insect is viewed from beneath. Less elongate than *H. platycerus*, from Rhodesia, which has a similarly rugose head, the antennæ much less dilated, the apices of the intermediate tibiæ differently formed. Larger than *H. rugaticeps*, Bourg., from Mern, and with a still more rugosely punctured head and prothorax, the elytra less parallel, the antennæ (♀) stouter.

### 37. *Hapalochrus fissipes*, sp. n.

♂. Moderately elongate, narrow, very shining, finely pubescent, and also thickly set with long erect hairs; cyaneous or bluish-green, the basal four joints of the antennæ beneath or in part, the anterior tibiæ (except at the base and apex), the intermediate femora at the base and the accompanying trochanters, and the abdomen (a series of dark spots along each side excepted), testaceous. Head and prothorax very sparsely punctulate, the latter smooth on the disc and nearly as long as broad; antennæ moderately long, joints 5–9 obliquely dilatate, 6–9 strongly transverse. Elytra much widened posteriorly, rounded at the tip, closely, rather coarsely punctate, smoother at the base. Anterior tibiæ broadly lobed at about the middle, and excavate beneath this, the apical portion narrow and compressed;

anterior tarsal joints 1 and 2 slightly thickened, 2 projecting over 3; intermediate tibiæ (Pl. VIII. fig. 21) very strongly incrassate, subtriangular, excavate in their apical third within, and furnished with a rather long, retractile, subtruncate appendage at about one-fourth from the apex (the tibiæ thus appearing deeply cleft at the tip when the appendage is drawn out of the cavity), the outer apical angle toothed beneath, the lower surface of the tibia bifoveate.

♀. Antennæ feebly serrate, joints 5-9 narrow, about as long as broad, almost equal in width; legs black.

Length  $3\frac{1}{2}$ - $3\frac{3}{4}$ , breadth  $1\frac{3}{4}$ - $1\frac{1}{2}$  mm. (♂ ♀.)

*Hab.* W. CENTRAL AFRICA, Belgian Congo: Amadi [type] (*P. Van den Plas*: ii.-iv. 1913: ♂ ♀), Congo da Lemba (*R. Mayné*: xii. 1912, iv. 1913: ♂ ♀), Dolo (*F. Chatin*: xi. 1912: ♂ ♀), Wombali (*P. Vanderijst*; vii., ix. 1913: ♂ ♀).

Described from a series of 22 specimens belonging to the Congo Museum, including eight males; some females from Manyema in the same Museum, named *H. appendicifer* by Pic, may belong here. Compared with the last-named insect, the ♂ of the present species may be recognized by the obliquely dilated, transverse outer joints of the antennæ, the less dilated anterior tibiæ, the shorter retractile appendage to the middle tibiæ, the much finer puncturing of the elytra, and the less robust build. The ♀ is very like the same sex of the insect here determined as *H. azureus*, Er. The allied *H. duvivieri*, Pic (? = *azureus*, Er.), type ♂, is said to have subfiliform antennæ and coarsely punctured elytra.

### 38. *Hapalochrus azureus*.

*Apalochrus azureus*, Erichs. Entomographien, p. 53 (♂) (1840).

? *Apalochrus cribrarius*, Thoms. Archives Ent. ii. p. 79 (1858).

*Hedyllus cæruleus*, Murray, Ann. & Mag. Nat. Hist. (3) xx. p. 321 (1867)\*.

? *Hapalochrous duvivieri*, Pic, Ann. Soc. Ent. Belg. li. p. 384 (♂) (1907).

♂. Anterior trochanters with a sharp tooth; anterior femora obsoletely subangulate at the middle beneath; anterior tibiæ moderately widened, sinuate within, obliquely compressed and excavate towards the apex; anterior tarsal joints 1 and 2 slightly thickened, 2 narrowly extending over 3; intermediate femora and tibiæ usually obscure testaceous, the latter (Pl. VIII. fig. 23) very stout, subtriangular, excavate at the apex beneath, and with a short broad lobe below the inner apical angle.

\* Omitted from the Munich Catalogue, vi. 1869.

♀. Antennæ darker, the legs black.

Length  $3\frac{1}{2}$ – $4\frac{1}{2}$ , breadth  $1\frac{1}{2}$ – $2\frac{1}{2}$  mm. (♂ ♀.)

*Hab.* W. AND CENTRAL AFRICA, Guinea (*type of Erichson*: ♂), Gaboon (*type of Thomson*), Old Calabar (*Mus. Brit.*, *types of Murray*: ♂ ♀), Lagos, Kamerun, Sierra Leone (*Mus. Brit.*), Gold Coast, Bompata, Ashanti (*A. E. Evans*), Aburi (*W. H. Patterson*); Uganda (*S. A. Neave, C. C. Gowdey*); Belgian Congo, Ibembe (*type of Pic*: ♂), Casai (*A. Crida, in Mus. Genoa*), Congo da Leimba, Anadi, Mayumbé-Kiniati, Benza-Masoia, Kisantu, Itoka, Coquilhatville, Ganda-Sundi, Mobwasa, Kilo, Wombali, Yambata, Lukula, Mandungu, &c. (*Mus. Congo Belge*).

A rather small, narrow, somewhat convex, cyanous or bluish-green form; the antennæ comparatively slender, subfiliform, testaceous in ♂, with the apical joints usually, and sometimes the basal ones above, infusate or black; the head and prothorax very shining, the eyes rather large; the elytra closely, coarsely, rugulose punctate, sometimes with a brassy lustre; the anterior and intermediate tibiæ and the intermediate femora usually obscure testaceous in ♂. This is the only W. African *Hapalochrus* known to me to which Erichson's brief description would apply; his type, ♂, wanted the posterior legs. Murray omitted to mention the sexual characters of his *H. cæruleus*, and Thomson is also silent in this respect. The British Museum has a long series of the present species from various localities on the W. coast of Africa, as well as many from Uganda. In the Belgian Congo, *H. azureus* must be an abundant insect, as there are upwards of 550 examples of it in the Congo Museum, including about 130 males; but the species is not represented in Dollman's Rhodesian Collection. A very small ♂ from Wombali has much narrower intermediate tibiæ, and it may not be conspecific with others from the same locality. The *H. duvivieri*, ♀, of the Congo Museum collection, named by Pic, has the antennal joints 2 and 3 greatly elongated, and it probably belongs to *Laius spinicornis*, of the same author; *H. sinuatipes*, Pic (1911), from E. Africa, seems to be an allied form.

### 39. *Hapalochrus mashunus*.

*Hapalochrus mashunus*, Gorb. Ann. & Mag. Nat. Hist. (7) vii. p. 359 (♂ ♀) (1901).

♂. Antennæ serrate, rather broad; anterior trochanters unarmed; anterior tibiæ compressed and excavate before the apex within; anterior tarsal joints 1 and 2 slightly thickened, 2 extending over 3; intermediate tibiæ (Pl. VIII.

fig. 24) strongly incrassate, deeply excavate towards the apex within, and furnished with a long, compressed, sinuous, retractile appendage, their lower surface deeply sinuato-excavate from the middle to the apex, the cavity fringed with long whitish hairs on its outer edge, the inner apical angle with a short tooth.

♀. Antennæ shorter and more slender.

*Hab.* S.E. AND E. AFRICA, Salisbury [type of Gorham], Chirinda in Gazaland, and Frere and Estcourt in Natal (*G. A. K. Marshall*: ♂ ♀), Livingstone (*H. C. Dollman*: ♀), Kashitu and Mwengwa in N. Rhodesia (*H. C. Dollman*: ♂ ♀), El Donyo eb Urro (*C. S. Betton*: ♂), Mlanje in Nyasaland and Kakindu in Uganda (*S. A. Neave*: ♀).

There are twenty examples of this species before me, including ten males. Gorham does not mention the retractile long, curved, tibial appendage of the ♂, which cannot be seen properly unless the tibia is viewed from beneath (see figure). A small cyaneous or bluish-green form, with black legs and antennæ, the elytral puncturing dense and fine. Fresh examples are thickly clothed with whitish pubescence, which is easily abraded.

*H. densatus* and *H. rugaticeps*, Bourg., both from Kili-mandjaro or Meru, co-types, ♀ ♀, of which are before me, are allied forms.

#### 40. *Hapalochrus lacinosus*, sp. n.

♂. Rather short, shining, pubescent, with longer, soft, semi-erect hairs intermixed; green or brassy green, the antennæ, palpi, and legs black. Head short, sparsely punctulate, slightly depressed in front; antennæ moderately long, rather stout, serrate, joints 3-9 about as long as broad. Prothorax transverse, a little wider than the head, sparsely punctured, almost smooth on the middle of the disc. Elytra moderately long, widened posteriorly, densely, very finely punctate. Anterior femora subangulate near the base beneath; anterior tibiæ thickened, obliquely compressed and deeply emarginate near the tip; anterior tarsal joints 1 and 2 thickened, 2 extending over 3; intermediate tibiæ (Pl. VIII. fig. 25) very stout, broadly widened, sinuate within, obliquely, deeply excavate towards the apex beneath, and furnished with a long, slender, compressed, sinuate, retractile appendage, the inner apical angle with a long tooth, the inner edge only of the cavity fringed with long hairs.

♀. Antennæ shorter and not so stout, the legs slender.

Length  $3\frac{1}{2}$ - $3\frac{3}{4}$ , breadth  $1\frac{1}{2}$ - $1\frac{2}{3}$  mm. (♂ ♀.)

*Hab.* S.E. AFRICA, Howick in Natal (*J. P. Cregoe*: ♂), Durban (*F. Muir*: ♀), Zululand (*ex coll. Fry*: ♂ ♀).

Two males and three females. Very like *H. mashunus*, Gorb., the ♂ with broader intermediate tibiæ, which on the lower surface are deeply, obliquely excavate and ciliate along the inner edge only, and have a longer tooth at the inner angle. The imperfectly described *H. rollei*, Pic (1911), length 4.6 mm., from "E. Africa," the ♂ of which has stout, appendiculate middle tibiæ, seems to be a close ally of the present species. *H. appendicifer*, Pic, has more coarsely punctured elytra, etc.

#### 41. *Hapalochrus densatus*.

*Hapalochrus (Paratinus) densatus*, Bourg. in Sjöstedt's Kilimandjaro-Meru Exped., i. Abt. 7, No. 10, p. 136 (♂ ♀) (1908).

♂. Antennæ rather slender, subfiliform, moderately long; anterior trochanters unarmed: anterior tibiæ feebly dilated beyond the middle and excavate before the apex; anterior tarsal joints 1 and 2 slightly thickened, 2 projecting over 3; intermediate femora sinuate (not angulate) beneath; intermediate tibiæ rather broadly, abruptly incrassate from about the basal third to the tip, deeply excavate and furnished with a compressed, curved, retractile appendage before the apex within.

*Hab.* E. AND W. CENTRAL AFRICA, Kilimandjaro and Meru, Kibonoto (*Dr. Sjöstedt*), Hima River, Uganda (*Dr. Bayer*: 4. iv. 1912: ♂), Wombwali, Belgian Congo (*P. Vanderijst*: vii., ix. 1913: ♂ ♀).

Females from Wombwali in the Congo Museum agree with a co-type of the same sex of *H. densatus* lent me by Dr. Sjöstedt; but the identification of the four males from that locality and from the Hiva River is somewhat doubtful, Bourgeois not having mentioned the appendage of the intermediate tibiæ, which, however, is not always visible at first sight. These specimens (length 3-3½ mm.) have the elytra a little more elongate than in *H. longicornis* and *H. patruelis*, and are clothed with rather long whitish hairs, the male having slender antennæ, unarmed anterior trochanters, and the intermediate femora simply sinuate beneath. *H. mashunus*, Gorb., has broader antennæ in the ♂, the elytra more finely punctured, &c.

#### 42. *Hapalochrus cinerascens*, sp. n.

♀. Elongate-subtriangular, shining, thickly clothed with long, adpressed, cinereous pubescence, with a few semi-erect hairs intermixed; bluish-green, the antennæ (the testaceous



lower surface of the basal joints excepted) and legs black. Head and prothorax rather small, sparsely, minutely punctate, the latter transverse, rounded at the sides, and almost smooth on the middle of the disc. Elytra rather long, rapidly widening to near the apex, bluntly rounded at the tip, transversely depressed on the disc below the base; densely, finely, rugulose punctate.

Length  $3\frac{3}{4}$ , breadth 2 mm.

*Hab.* ABYSSINIA (*Mus. Brit.*).

One female. This insect seems to be nearest allied to *H. mashunus*, Gorh., and *H. densatus*, Bourg., and it is separable from the corresponding sex of those species by having the elytra much more widened posteriorly, the puncturing of the latter being very fine and dense. Three species only of the genus have been seen by me from Abyssinia, each represented by a single example. The one here described is so distinct that there can be little risk in naming it from the female sex.

#### 43. *Hapalochrus janthinus*.

♀. *Hapalochrus janthinus*, Fairm. Ann. Soc. Ent. Fr. (6) iii. p. 157 (1887).

*Hapalochrus (Paratinus) janthinus*, Bourg. in Sjöstedt's Kilimandjaro-Meru Exped. i. Abt. 7, No. 10, p. 134 (♂ ♀) (1908).

♀. *Hapalochrous goossensi*, Pic, Ann. Soc. Ent. Belg. iii. p. 311 (1908).

Elongate, rather convex, shining, somewhat thickly clothed with long, semi-erect, blackish hairs; bluish-green or cyanoviolaceous, or, more rarely, æneous, purplish, or obscure cupreous, the antennæ and legs black or metallic, the abdomen usually in part red, the intermediate femora sometimes with a reddish spot at the base in ♂. Head sparsely, finely punctate; antennæ (♂) long, in some specimens broad, serrate, and tapering towards the tip, in others less thickened, subserrate, and with joints 2-10 almost equal in width, (♀) shorter and more slender. Prothorax transverse, broader than the head, smooth on the disc, sparsely punctulate at the sides and apex. Elytra long, rather convex, gradually widening to beyond the middle, rounded at the apex, coarsely, closely, confusedly punctured.

♂. Anterior trochanters unarmed; anterior tibiæ rather stout, thickened at the middle, and then strongly, obliquely compressed; anterior tarsal joints 1 and 2 subequal in length, 2 narrowly extended over 3; intermediate tibiæ very stout, slightly rounded externally, foveate and deeply excavate in their outer half beneath, and with a short compressed

lobe at the inner apical angle, and a curved, dentiform pencil of hairs beneath the outer angle.

Length 5-7, breadth  $2\frac{1}{2}$ - $3\frac{1}{4}$  mm. ( $\sigma$   $\varphi$ .)

*Hab.* E. AND W. CENTRAL AFRICA, Usagara (type of *Fairmaire*:  $\varphi$ ), Kibonoto, Kilimandjaro, Mern (*Dr. Sjöstedt*), Ruwenzori, alt. 5300 ft. (*Scott-Elliott*), Uganda generally, up to 5000 ft. (*S. A. Neave*, *C. C. Gowdey*), S. Masai Reserve (*T. J. Anderson*), Nandi Plateau, W. slopes of Kenya on Meru-Nyeri Road up to 6,200 ft., Kambove, Katanga, and Serenje District in N.E. Rhodesia (*S. A. Neave*), Mogorr River (*Capt. A. O. Luckman*), Kashitu in N.W. Rhodesia (*H. C. Dollman*); Kisantu (type of *H. goossensi*, Pic,  $\varphi$ ), Congo da Lemba, Kundi, Kambove-Ruwe, Ètshushu, Wombali, Kasenga, and Sankisia, Belgian Congo (*Mus. Congo Belge*), Madona (*Dr. S. Neave*); Angola (*Mus. Brit.*:  $\sigma$   $\varphi$ ).

The Congo Museum possesses a series of upwards of 2200 examples of this species (mostly from Congo da Lemba), of which about 130 are males, and in the British Museum there are at least 200 more, including twenty males. The types of *H. goossensi*, Pic,  $\varphi$ , lent me by M. Schouteden, agree perfectly with *H. janthinus*, Fairm.,  $\varphi$ , as identified by Bourgeois. The  $\sigma$  sometimes has a reddish mark at the base of the intermediate femora; but the second joint of the anterior tarsi is not simple in this sex, as he supposed, the claw-like upper prolongation being conspicuous in one of his Kilimandjaro males before me. In the 38 specimens (34  $\varphi$ , 4  $\sigma$ ) captured at Kashitu in Rhodesia by the late H. C. Dollman, the antennæ of the males are a little less dilated than usual, one, indeed, having these organs quite slender. *H. formosus*, Harold (1879), type  $\varphi$ , from Angola, must be very closely related to the present insect; but as the antennæ are stated to have the basal joint reddish beneath, the identification is doubtful. The  $\varphi$  of the present species is very like a *Haltica* of the same regions, and it might easily be mistaken for a member of that genus.

#### 44. *Hapalochrus foveiger*, sp. n.

$\sigma$ . Moderately elongate, rather convex, shining, thickly clothed with rather long, semi-erect, blackish hairs; cyaneous or violaceous, the head and the disc of the prothorax sometimes brassy-black, the abdomen in part red, the antennæ, palpi, and legs wholly black or metallic; head and prothorax sparsely punctured, the latter smooth on the disc; elytra coarsely, closely, uniformly punctate, the punctures deep and

separate one from another. Antennæ long, not very stout, subfiliform, joints 2-10 much longer than broad, about equal in width. Prothorax transverse, obliquely narrowed behind, deeply grooved at the base. Elytra moderately long, at the base about as broad as the prothorax, widening to near the apex, the apices broadly, conjointly rounded. Anterior tibiæ thickened at the middle and hollowed thence to the apex; anterior tarsal joints 1 and 2 rather long, subequal in length, 2 narrowly projecting over 3; intermediate femora with a smooth, deep fovea at the base beneath; intermediate tibiæ very stout, convex, deeply excavate at the middle and apex beneath, and with a short, compressed lobe at the inner apical angle.

♀. Antennæ shorter and more slender.

Length  $4\frac{2}{3}$ - $5\frac{1}{2}$ , breadth  $2\frac{1}{5}$ - $2\frac{2}{5}$  mm. (♂ ♀.)

*Hab.* E. AFRICA, Serenje in N.E. Rhodesia, alt. 4500 ft. (*S. A. Neave*: 15, 16. xii. 1907: ♂), Kaslitu and Mwenga [type] (*H. C. Dollman*: xii. 1914, i. 1915: ♂ ♀).

Seven males and three females. Not unlike a small *H. janthinus*, Fairm., the elytra relatively shorter, more widened posteriorly, and coarsely, closely, uniformly punctate; the intermediate femora of the ♂ deeply foveate at the base beneath. *H. clavicornis* has a somewhat similar, but larger, excavation of the middle femora in the same sex.

#### 45. *Hapalochrus hamatus*, sp. n.

♂. Cyaneous, the head and prothorax brassy or greenish in one specimen, the legs, palpi, and antennæ black or metallic; very shining, the vestiture as in *H. furcatus* (No. 50). Head short, sparsely punctulate; antennæ stout, rather short, serrate, joints 6-9 broad. Prothorax transverse, smooth on the disc, sparsely punctulate near the margins. Elytra depressed on the disc below the base, rather sparsely, somewhat coarsely punctate, with prominent, cariniform lateral margin, the interspaces subplicate. Anterior trochanters armed with a long, hook-like tooth; anterior femora grooved and finely albo-ciliate beneath; anterior tibiæ simply sinuate, compressed towards the apex; anterior tarsal joints 1 and 2 thickened, 2 extending over 3; intermediate femora (Pl. VIII. fig. 26) excavate towards the apex beneath (appearing subangulate at about the middle); intermediate tibiæ (Pl. VIII. fig. 26) moderately thickened, abruptly widening from a little below the base to near the tip, excavate at the middle and apex beneath.

♀. Antennæ much more slender, joints 3-9 longer than broad.

Length  $4\frac{1}{10}$ -5, breadth  $1\frac{9}{10}$ -2 mm. (♂ ♀.)

*Hab.* E. AFRICA, Kashitu in N.W. Rhodesia (*H. C. Dollman*: i. 1915).

Two males and one female are referred to *H. hamatus*, which is extremely like *H. furcatus* from the same locality, and is only separable therefrom by the ♂-characters: the anterior trochanters are strongly hooked and the intermediate tibiæ abruptly, moderately widened from near the base (as in *H. platycerus*, ♂); the anterior tibiæ want the prominent median lobe; the intermediate femora are somewhat deeply emarginate near the apex; and the antennæ are rather broadly dilated, but much less so than in *H. platycerus*.

[To be continued.]

XXXIII.—*On Mammals from the Lower Amazons in the Goeldi Museum, Para.* By OLDFIELD THOMAS.

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As already noted in connection with the description of the new spiny rat, *Lonchothrix emiliæ*, the authorities of the Goeldi Museum, Para, have kindly allowed me the opportunity of examining the series of mammals accumulated by them during the last six years.

As the fauna of this region is still very imperfectly known, I think it useful to give a list of the whole of the specimens and their localities.

The majority of the specimens have been collected by Fräulein Dr. E. Sneathlage, and it is to her energy and ability in collecting, and to the enlightened generosity of the Trustees of the Goeldi Museum in the distribution of the specimens, that the greater part of our increased knowledge of Amazonian mammals is due.

A previous paper of the same kind, giving a list of twenty-eight species, was published in 1912\*, while a number of Amazonian novelties received from the Para Museum have been described at various times since 1908.

The regions chiefly concerned in the present series are

\* Ann. & Mag. Nat. Hist. (8) ix. p. 84 (1912).